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09/399,502	09/20/1999	GARY D. MARTIN	AMCC3000	2333

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EXAMINER
VAUGHAN, MICHAEL R

ART UNIT	PAPER NUMBER
2131	3

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Please find below and/or attached an Office communication concerning this application or proceeding.

3

Office Action Summary	Application No.	Applicant(s)	
	09/399,502	MARTIN, GARY D.	
	Examiner	Art Unit	
	Michael R Vaughan	2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-20 is/are rejected.

7)☒ Claim(s) 10 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 20 September 1999 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Detailed Action

Claims 1-20 have been examined

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 9-20-99 was filed. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 108(a), 108(b), and 108(c). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: inconsistent terminology. On page 13, line 8 the word "encrypts" should be –decrypts--. Also on page 13, line 11, reference 28 is referred to as "de-scrambler" which is inconsistent to other references in which it is referred to as "frame terminal." The applicant is advised to carefully examine the rest of the applicant for any other inconsistencies.

Appropriate correction is required.

Claim Objections

Claim 10 is objected to because of the following informalities: the word "encrypts" should be –decrypts--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, are rejected under 35 U.S.C. 103(a) as being unpatentable over Lang (USP 5,835,602) in view of White (USP 5,303,303).

With respect to Claims 1-4 Lang teaches the encryption system for the transmission of information system that uses logic level transitions for clock recovery comprising:

a packet generator (data generator) (column 2, lines 41-43);

a self-synchronous scrambling circuit connected to said frame generator (column 2, lines 51-53);

a SONET frame generator (frame generator) having and input and output (column 2, lines 46-47);

a SONET frame terminator (frame terminal) (column 2, lines 61-62);

a self-synchronous de-scrambling circuit (column 2, line 64);

a packet terminator (information terminal) (column 2, lines 65-66).

Lang does not teach encrypting the entire frame. White does, however, teach to encrypt the header, payload and trailer (column 1, lines 36-44). White suggests that data is more secure if the header, payload, and trailer of packets are all encrypted. One would be motivated by this suggestion to incorporate this procedure into the well-known procedure taught by Lang. In doing so, the frame generator would be connected between the packet generator and the self-synchronous scrambling circuit. White teaches that the header, payload, and trailer can all be encrypted into one packet and then that encrypted packet can be placed into another packet with a new header and trailer. White's use of the word packet in a packet switching network is synonymous with Lang's use of the word frame in a circuit-switching network. In view of this, it would have been obvious to one of ordinary skill in the art at the time the invention was made to encrypt the entire frame first before transmission.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lang and White as applied to claims 1-4 above, and further in view of Adams et al (USP 5,444,782).

The combined teachings of Lang and White are silent in disclosing of an information terminal connected to the output of the frame terminal. Adams et al clearly teaches that encryption of data is

transmitted between two terminals (column 1, lines 10-14). It would have been obvious to a person of ordinary skill in the art at the time of the invention to be motivated to have an information terminal. It is well known that one needs a final destination where another can receive the transmitted data.

Claims 6, 7, 9, 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lang and White as applied to claims 1-4 above, and further in view of Kimura et al (USP 5,825,888) and Voyer et al (USP 3,927,267).

As per claim 6, Lang and White are silent in disclosing of a timing signal from a frame generator that controls the self-synchronous scrambler. In order for the scrambler to effectively determine the sections or boundaries of the incoming frames it must be signaled in some way. One known way in the art at the time of this invention is with timing signals. Timing signals as taught by Kimura et al are a way to effectively signal a device to start and stop (period) its operation (column 2, lines 42-45). It is obvious to one of ordinary skill in the art that timing signals should originate from a source, which knows the correct time i.e. frame sections to perform the necessary function. In view of this, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a timing signal from the frame generator to signal the scrambler when to scramble frame sections. Because the frame generator knows the frame sections, it is obvious that it should then drive the self-synchronous scrambler. Lang and White are silent in disclosing time multiplexing. Voyer et al clearly teaches the process of time multiplexing, or TDM, as it is commonly known [57]. Multiplexing is well known in the art and is a method of putting multiple data streams in a single signal by separating the signal into many segments, each having a very short duration. Each individual data stream is reassembled at the receiving end based on the timing. In view of this, it would have been have obvious to one of ordinary skill in the art at the time of the invention to use time multiplexing to create the frames.

With respect to claim 9, the examiner applies the same rationale for motivation with respect to [de] multiplexing which is reversing the process of time multiplexing. The examiner also supplies the same rationale for the motivation as recited in rejection of claim 6 to incorporate timing signals.

As per claim 12, Lang teaches:

the frame generator accepts HDLC packets (column 2, lines 41-47);

the frame generator could generate SONET frames (column 2, lines 46-47);
the SONET frame termination recovers frames into packets (column 2, lines 61-63);
recovered packets are delivered to an HDLC packet terminator (column 2, lines 65-67).
The combined teachings of Lang, White, and Kimura et al are silent in disclosing that the frame terminal delivers HDLC packets. It is obvious that Lang's SONET frame termination does however deliver encrypted HDLC packets which must be first descrambled before can be delivered to their final destination. Because the applicant's frame terminal receives descrambled frames it would have been obvious to one of ordinary skill in the art at the time of the invention to have the frame terminal deliver the HDLC data. The frame terminal receives decrypted frames and can therefore directly supply the HDLC data. This fact would have been obvious to one ordinary skill in the art at the time of the invention.

As per claim 7, Lang teaches encrypting just the data (information section) of the packet (column 2, lines 51-53). With respect to the use of timing signals, the examiner supplies the same rationale for the motivation as recited in rejection of claim 6. In view of this, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use timing signals to signal the scrambler to encrypt the information section of each frame.

As per claim 10, Lang teaches decrypting just the data (information section) of the packet (column 2, lines 61-67). With respect to the use of timing signals, the examiner supplies the same rationale for the motivation as recited in rejection of claim 6. In view of this, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use timing signals to signal the self synchronous descrambler to descramble the information section of each frame.

Claims 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lang, White, Kimura et al, and Voyer et al as applied to claims 1-6 and 9 above, and further in view of Kim et al (USP 5,442,703).

With respect to claim 8, encrypting the information section the examiner supplies the same rationale for the motivation as recited in rejection of claim 7. With respect to the use of timing signals and time multiplexing, the examiner supplies the same rationale for the motivation as recited in rejection of claim 6. White teaches that the header and trailer (overhead) may be encrypted separately from the

information-carrying portion (data) (column 1, lines 43-45). Kim et al teaches that the use of multiple encryption keys (patterns) is desirable in communication (column 1 lines 23-26). It is inherently more secure to use multiple encryption processes. It is obvious that if one was to encrypt the overhead separately from the data, that he/she should use a different encrypt pattern for each. Otherwise, both data and overhead could have simply been encrypted together with the same encryption pattern. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to encrypt the information separate from the overhead.

With respect to claim 11, the examiner supplies the above-mentioned rationale for the motivation in rejection of claim 8. It is inherent that claim 11 is decrypting, or undoing, the matter that was encrypted in claim 8. Therefore the previous motivation of claim 8 applies to the rejection of claim 11.

Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lang in view of White and Voyer et al.

As per claim 13, Lang teaches an encryption system for the transmission of information system that uses logic level transitions for clock recovery comprising:

a transmitter comprised of a HDLC packet generator for receiving input data and generating packets (column 2, lines 41-43);

delivering packets to a SONET frame generator (column 2, lines 46-48);

self synchronously scrambling the frames (column 2, lines 54-55);

Lang does not teach encrypting the entire frame. White does, however, teach to encrypt the header, payload and trailer (column 1, lines 36-44). White suggests that data is more secure if the header, payload, and trailer of packets are all encrypted. One would be motivated by this suggestion to incorporate this procedure into the well-known procedure taught by Lang. White teaches that the header, payload, and trailer can all be encrypted into one packet and then that encrypted packet can be placed into another packet with a new header and trailer. White's use of the word packet in a packet switching network is synonymous with Lang's use of the word frame in a circuit-switching network. In view of this, it would have been obvious to one of ordinary skill in the art at the time the invention was made to encrypt the entire frame first before transmission. Lang is silent in disclosing time multiplexing. Voyer et al clearly

teaches the process of time multiplexing, or TDM, as it is commonly known [57]. Multiplexing is well known in the art and is a method of putting multiple data streams in a single signal by separating the signal into many segments, each having a very short duration. Each individual data stream is reassembled at the receiving end based on the timing. In view of this, it would have been have obvious to one of ordinary skill in the art at the time of the invention to use time multiplexing to create the frames.

As per claim 14,

Lang teaches:

receiving the frame (column 2, line 61);

self synchronously decrypting the frames from the recovered clock (column 2, lines 61-64);

recovering the information (column 2, line 64-66).

Claims 15, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lang, White, and Voyer et al as applied to claims 13 and 14 above, and further in view of Kimura et al.

As per claim 15, Lang and White are silent in disclosing generating timing data and scrambling/descrambling in response to the timing data. In order to scramble frames effectively, the sections or boundaries of the incoming frame sections must be signaled in some way. One known way in the art at the time of this invention is with timing signals. Timing signals as taught by Kimura et al are a way to effectively signal a process to start and stop (period) its operation (column 2, lines 42-45). It is obvious to one of ordinary skill in the art that timing signals could control the scrambling of frames because they know the correct time to perform the necessary function. In view of this, it would have been obvious to one of ordinary skill in the art at the time of the invention to create timing signals from the occurrence of information and overhead section of frames and then use the timing signals to control the scrambling of the frames. The motivation is clear. Modifying the teachings of Lang and White in combination with the teachings of Kimura et al is an effective to way to control scrambling of individual frame sections.

As per claim 16, the examiner supplies the above-mentioned rationale for the motivation in rejection of claim 15. The motivation is the same with regards to descrambling sections of frames in response to timing signals.

As per claim 18, Lang teaches scrambling the entire data (information) section and not the overhead of each frame (column 1, lines 59-61).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lang, White, Kimura et al, and Voyer as applied to claims 13-16 above, and further in view of Kim et al. White teaches that the header and trailer (overhead) may be encrypted separately from the information-carrying portion (data) (column 1, lines 43-45).). Kim et al teaches that the use of multiple encryption keys (patterns) is desirable in communication (column 1 lines 23-26). It is inherently more secure to use multiple encryption processes. It is obvious that if one encrypted the overhead separately from the data, that he/she should use a different encrypt pattern for each. Otherwise, both data and overhead could have simply been encrypted together with the same encryption pattern. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to scramble the overhead sections of the frame with a different encryption pattern than the one used to encrypt the information. The same obviousness applies to descrambling the overhead with a different pattern. The pattern must match the one used to scramble in order to descramble it correctly. Otherwise, the same pattern would descramble both the overhead and information sections and defeat the purpose of using multiple encryption patterns.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lang in view of White. Lang teaches a digital transmission system of a type that uses NRZ line coding comprising:

a means for generating information (column 3, lines 63-64);

a means for assembling information into frames that include information and overhead (column 4, lines 1-3);

self synchronously scrambling the frames (column 2, lines 65-67).

Lang does not teach encrypting the entire frame nor does he teach scrambling once the entire frame has been assembled. White does, however, teach to encrypt the header, payload and trailer (column 1, lines 36-44). White suggests that data is more secure if the header, payload, and trailer of packets are all encrypted. One would be motivated by this suggestion to incorporate this procedure into the well-known procedure taught by Lang. White teaches that the header, payload, and trailer can all be encrypted into one packet and then that encrypted packet can be placed into another packet with a new header and

trailer. White's use of the word packet in a packet switching network is synonymous with Lang's use of the word frame in a circuit-switching network. In view of this, it would have been obvious to one of ordinary skill in the art at the time the invention was made to encrypt the entire frame first before transmission. The examiner notes that the sabotage prevention system as cited in claim 19 is the same as the system cited in claim 1. An encryption system is implemented to prevent sabotage.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lang and White as applied to claim 19 above, and further in view of Kimura et al and Mariani (USP 5,355,506). Lang and White are silent in disclosing generating timing data and scrambling/descrambling in response to the timing data. In order to scramble frames effectively, the sections or boundaries of the incoming frame sections must be signaled in some way. One known way in the art at the time of this invention is with timing signals. Timing signals as taught by Kimura et al are a way to effectively signal a process to start and stop (period) its operation (column 2, lines 42-45). It would be obvious to one of ordinary skill in the art that timing signals could control the scrambling of frames because they know the correct time to perform the necessary function. In view of this, it would have been obvious to one of ordinary skill in the art at the time of the invention to create timing signals from the occurrence of information and overhead sections of frames and then use the timing signals to control the scrambling of the frames. The motivation is clear. Modifying the teachings of Lang and White in combination with the teachings of Kimura et al is an effective to way to selectively control scrambling of individual frame sections. As is taught by Mariani, overhead bits (column 3, lines 57-62), also known as flags are set or cleared to indicate their value. One such overhead bit would be the selective scrambling bit whereby scrambling would be performed based on the value of the overhead bit.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael R Vaughan whose telephone number is 703-305-0354. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 703-305-9648. The fax phone numbers for the organization where this

application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7239 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Michael R Vaughan
Examiner
Art Unit 2131

MV

July 22, 2003

AYAZ SHEIKH
SUPERVISORY PATENT EXAMINER
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